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SPACE OPERATIONS CONTROL CENTER

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SATELLITE ATTITUDE REPORT

Vol. 3, No. 23

OTS PRICE

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GODDARD SPACE FLIGHT CENTER

REPORT NO.

SPACE OPERATIONS CONTROL CENTER  
GODDARD SPACE FLIGHT CENTER  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

VOLUME 3 NO. 23

NOVEMBER 30, 1963

SATELLITE SITUATION REPORT

THE FOLLOWING REPORT REFLECTS DATA COMPUTED AND COMPILED BY THE  
GODDARD SPACE FLIGHT CENTER, NORAD, AND SMITHSONIAN ASTROPHYSICAL  
OBSERVATORY AS OF 1200Z ON NOVEMBER 30, 1963.

OBJECT	OBJECTS IN ORBIT				INCLI- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FRFQ. (MC/S)
	CODE NAME	SOURCE	LAUNCH	NODAL PERIOD				
1958 LAUNCHES								
ALPHA 1	EXPLORER 1	US	1 FEB	104.7	33.19	1638	340	108.012 &
BETA 1	ROCKET BODY	US	17 MAR	138.2	34.26	4318	646	
BETA 2	VANGUARD 1	US	17 MAR	133.9	34.33	3937	661	
1959 LAUNCHES								
ALPHA 1	VANGUARD 2	US	17 FEB	125.3	32.88	3283	568	108.012 &
ALPHA 2	ROCKET BODY	US	17 FEB	129.5	32.92	3678	536	
ETA 1	VANGUARD 3	US	18 SEP	129.7	33.34	3761	471	
MU 1*	LUNIK 1	USSR	2 JAN	450 D	0.01	1.315AU	0.9766AU	
NU 1*	PIONEER 4	US	3 MAR	398 D	1.30	1.142AU	0.9871AU	
IOTA 1	EXPLORER 7	US	13 OCT	101.1	50.31	1075	552	
IOTA 2	ROCKET BODY	US	13 OCT	100.9	50.31	1055	551	
1960 LAUNCHES								
ALPHA 1*	PIONEER 5	US	11 MAR	312 D	3.35	0.995AU	0.8061AU	108.012 &
BETA 1	ROCKET BODY	US	1 APR	99.0	48.39	736	697	
BETA 2	TIROS 1	US	1 APR	99.1	48.38	747	693	
BETA 3	NONE	US	1 APR	97.8	48.48	705	610	
BETA 4	NONE	US	1 APR	99.8	48.16	811	696	
GAMMA 2	TRANSIT 1B	US	13 APR	94.0	51.25	594	355	
GAMMA 4	NONE	US	13 APR	96.7	51.25	731	476	
EPSILON 3	NONE	USSR	15 MAY	91.7	64.98	459	255	
ZETA 1	MIDAS 2	US	24 MAY	94.2	33.04	501	470	
ETA 1	TRANSIT 2A	US	22 JUN	101.6	66.69	1057	613	
ETA 2	GREB	US	22 JUN	101.6	66.69	1055	613	
ETA 3	ROCKET BODY	US	22 JUN	101.4	66.67	1037	613	
IOTA 1	ECHO 1	US	12 AUG	114.7	47.23	1839	1055	
IOTA 2	ROCKET BODY	US	12 AUG	118.0	47.25	1679	1509	
IOTA 3	METAL OBJECT	US	12 AUG	118.2	47.23	1700	1504	

# OBJECTS IN ORBIT

TRANSMITTING  
FREQ. MC/S)

PERIGEE  
Km.

APOGEE  
Km.

INCLI -  
NATION

NODAL  
PERIOD

LAUNCH

SOURCE

CODE NAME

OBJECT

## 1960 LAUNCHES

IOTA 4	METAL OBJECT	US	12 AUG							
IOTA 5	METAL OBJECT	US	12 AUG	118.3	47.29	1692	1529			
NU 1	COURIER 1B	US	4 OCT	106.9	28.35	1226	952			
NU 2	ROCKET BODY	US	4 OCT	106.4	28.28	1203	932			
XI 1	EXPLORER 8	US	3 NOV	112.3	49.97	2250	421			
XI 2	ROCKET BODY	US	3 NOV	111.9	49.98	2210	425			
XI 3	NONE	US	3 NOV	109.4	49.39	2013	396			
XI 4	NONE	US	3 NOV	110.7	50.51	2102	421			
PI 1	TIROS 2	US	23 NOV	98.2	48.50	740	609			
PI 2	ROCKET BODY	US	23 NOV	98.0	48.51	728	609			
PI 3	NONE	US	23 NOV	98.1	48.52	729	613			
PI 4	NONE	US	23 NOV	98.2	48.49	735	620			

## 1961 LAUNCHES

ALPHA 1	SAMOS 2	US	31 JAN	94.8	97.43	539	473			
ALPHA 2	METAL OBJECT	US	31 JAN	94.7	97.43	534	471			
GAMMA 1*	VENUS PROBE	USSR	12 FEB	300 D	0.58	1.019AU	0.7183AU			
DELTA 1	EXPLORER 9	US	16 FEB	112.5	38.96	2301	396			
DELTA 2	ROCKET BODY	US	16 FEB	118.4	38.85	2582	647			
DELTA 3	NONE	US	16 FEB	INSUFFICIENT OBSERVATIONS						
KAPPA 1	EXPLORER 10	US	25 MAR	POSITION UNCERTAIN						
NU 1	EXPLORER 11	US	27 APR	107.7	28.81	1802	459			
OMICRON 1	TRANSIT 4A	US	29 JUN	103.8	66.80	998	880			105,400
OMICRON 2	INJUN-SR-3	US	29 JUN	103.8	66.80	998	881			
OMICRON 3-206**	METAL OBJECTS	US	29 JUN							
RHO 1	TIROS 3	US	12 JUL	100.3	47.90	790	765			
RHO 2	ROCKET BODY	US	12 JUL	100.3	47.92	799	751			
RHO 3	METAL OBJECT	US	12 JUL	98.8	47.92	788	620			
RHO 4	METAL OBJECT	US	12 JUL	101.9	47.84	942	766			
SIGMA 1	MIDAS 3	US	12 JUL	161.5	91.19	3573	3316			
SIGMA 3	METAL OBJECT	US	12 JUL	161.2	91.22	3560	3302			
SIGMA 4	METAL OBJECT	US	12 JUL	161.9	91.19	3572	3350			

# OBJECTS IN ORBIT

OBJECT	CODE NAME	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1961 LAUNCHES								
UPSILON 1	EXPLORER 12	US	15 AUG	INSUFFICIENT OBSERVATIONS				
A DELTA 1	MIDAS 4	US	21 OCT	166.0	95.86	3769	3483	
A DELTA 3	METAL OBJECT	US	21 OCT	165.6	95.78	3714	3505	
A DELTA 4	METAL OBJECT	US	21 OCT	166.4	95.86	3784	3501	
A ETA 1	TRANSIT 4B	US	15 NOV	105.6	32.44	1104	958	
A ETA 2	TRAAAC	US	15 NOV	105.6	32.45	1116	948	
A ETA 3	ROCKET BODY	US	15 NOV	105.5	32.43	1092	957	
1962 LAUNCHES								
ALPHA 1*	RANGER 3	US	26 JAN	406.4D	.3988	1.163AU	0.9839AU	
ALPHA 2	ROCKET BODY	US	26 JAN	INSUFFICIENT OBSERVATIONS				
BETA 1	TIROS 4	US	8 FEB	100.3	48.30	868	684	
BETA 2	ROCKET BODY	US	8 FEB	101.3	48.14	942	703	
BETA 3	METAL OBJECT	US	8 FEB	99.4	48.40	768	699	
BETA 4	METAL OBJECT	US	8 FEB	100.2	48.30	828	719	
ZETA 1	ORB. SOL. OBS. 1	US	7 MAR	95.9	32.82	586	553	
ZETA 2	ROCKET BODY	US	7 MAR	95.9	32.78	588	552	
KAPPA 1		US	9 APR	153.0	86.68	3411	2783	
KAPPA 3		US	9 APR	152.7	86.59	3366	2798	
KAPPA 4		US	9 APR	153.4	86.65	3425	2798	
MU 2	ROCKET BODY	US	23 APR	INSUFFICIENT OBSERVATIONS				
OMICRON 1	ARIEL	US/UK	26 APR	100.6	53.83	1196	380	136.405
OMICRON 2	ROCKET BODY	US/UK	26 APR	100.5	53.86	1194	376	
A ALPHA 1	TIROS 5	US	19 JUN	100.4	58.11	959	603	
A ALPHA 2	ROCKET BODY	US	19 JUN	100.4	58.11	950	605	
A ALPHA 3	METAL OBJECT	US	19 JUN	101.7	58.21	1066	617	
A ALPHA 4	METAL OBJECT	US	19 JUN	99.1	57.99	866	566	
A EPSILON 1	TELSTAR 1	US	10 JUL	157.7	44.80	5649	940	
A EPSILON 2	ROCKET BODY	US	10 JUL	157.5	44.79	5634	942	

# OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLINATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1962 LAUNCHES								
A OMICRON 1		US	23 AUG	99.6	98.68	852	620	
A OMICRON 2		US	23 AUG	98.3	98.69	752	598	
A OMICRON 3		US	23 AUG	100.9	98.67	967	626	
A OMICRON 4		US	23 AUG	99.6	98.69	860	611	
A RHO 1*	MARINER	US	27 AUG	COMPUTATIONS IN PROGRESS				
A RHO 2*	ROCKET BODY	US	27 AUG	COMPUTATIONS IN PROGRESS				
A UPSILON 1		US	1 SEP	92.6	82.81	509	285	
A PSI 1	TIROS 6	US	18 SEP	98.7	58.30	706	691	
A PSI 2	ROCKET BODY	US	18 SEP	98.6	58.31	709	682	
A PSI 3	METAL OBJECT	US	18 SEP	99.4	58.44	756	702	
A PSI 4	METAL OBJECT	US	18 SEP	98.0	58.21	698	632	
B ALPHA 1	ALOUETTE	CANADA	29 SEP	105.5	80.46	1035	998	136.979; \$136.592 \$136.077
B ALPHA 2	ROCKET BODY	US	29 SEP	105.5	80.47	1033	994	
B ALPHA 3	METAL OBJECT	US	29 SEP	105.4	80.51	1027	995	
B ALPHA 4	METAL OBJECT	US	29 SEP	105.5	80.41	1031	1002	
B GAMMA 1	EXPLORER 14	US	2 OCT	2184.6	41.16	96222	2567	136.440
B GAMMA 2	ROCKET BODY	US	2 OCT	INSUFFICIENT OBSERVATIONS				
B ETA 1*	RANGER 5	US	18 OCT	366D	.39011	1.052AU	.9490AU	
B ETA 2*	ROCKET BODY	US	18 OCT	COMPUTATIONS IN PROGRESS				
B THETA 1		USSR	20 OCT	92.6	48.96	588	222	
B KAPPA 1		US	26 OCT	239.2	71.46	4834	201	
B LAMBDA 1	EXPLORER 15	US	27 OCT	314.2	17.98	17569	318	
B LAMBDA 2	ROCKET BODY	US	27 OCT	INSUFFICIENT OBSERVATIONS				
B MU 1	ANNA 1 B	US	31 OCT	107.8	50.16	1188	1072	162; 324
B MU 2	ROCKET BODY	US	31 OCT	107.6	50.19	1159	1075	
B NU 3*		USSR	1 NOV	519 D	2.683	1.604AU	9237AU	
B TAU 1		US	13 DEC	112.2	70.30	2431	225	
B TAU 2		US	13 DEC	114.1	70.31	2587	235	
B TAU 4	INJUN 3	US	13 DEC	110.2	70.34	2245	228	

# OBJECTS IN ORBIT

PERIGEE TRANSMITTING  
Km. FREQ. (MC/S)

APOGEE  
Km.

INCL-  
NATION

NODAL  
PERIOD

LAUNCH

SOURCE

CODE NAME

OBJECT

## 1962 LAUNCHES

B TAU 5	US	13 DEC	112.1	70.32	2419	229
B TAU 6	US	13 DEC	113.6	70.31	2546	236
B UPSILON 1	US	13 DEC	185.0	47.50	7442	1316
B UPSILON 2	US	13 DEC	184.8	47.90	7467	1274
B CHI 1	US	16 DEC	104.3	52.05	1194	736
B PSI 1	US	19 DEC	99.1	90.63	738	701
B PSI 2	US	19 DEC	97.8	90.73	730	574
B PSI 3	US	19 DEC	99.1	90.63	732	697
B PSI 4	US	19 DEC	100.3	90.48	831	706

136.140;\$136.620

## 1963 LAUNCHES

1963 3A	US	16 JAN	94.6	81.88	533	459
1963 3C	US	16 JAN	92.2	81.86	390	368
1963 4A	US	14 FEB	1426.4	33.51	37016	38182
1963 4B	US	14 FEB	604.4	33.12	34372	253
1963 5A	US	19 FEB	97.8	100.50	792	507
1963 5B	US	19 FEB	97.8	100.50	794	504
1963 5C	US	19 FEB	97.0	100.49	745	481
1963 5D	US	19 FEB	98.4	100.47	829	533
1963 8B	USSR	2 APR	COMPUTATIONS IN PROGRESS			
1963 9A	US	3 APR	95.6	57.62	851	250
1963 13A	US	7 MAY	225.2	42.76	10811	967
1963 13B	US	7 MAY	225.0	42.78	10794	968
1963 14A	US	9 MAY	166.5	87.37	3680	3609
1963 14B	US	9 MAY	166.5	87.35	3673	3618
1963 14C	US	9 MAY	166.5	87.34	3682	3608
1963 14D	US	9 MAY	166.5	87.36	3676	3611
1963 14E	US	9 MAY	166.1	87.47	3669	3591
1963 14F	US	9 MAY	166.9	87.34	3697	3623
1963 14G	US	9 MAY	166.5	87.35	3658	3629

136.050

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLINATION</u>	<u>APOGEE km.</u>	<u>PERIGEE km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1963 LUANCHES								
1963 17A		USSR	22 MAY	93.8	48.98	674	259	
1963 17C		USSR	22 MAY	95.2	49.21	731	332	
1963 17G		USSR	22 MAY	92.4	49.00	538	258	
1963 22A		US	16 JUN	99.8	90.01	753	735	150;400
1963 22B		US	16 JUN	99.8	90.02	765	723	
1963 22C		US	16 JUN	101.3	90.21	889	745	
1963 22D		US	16 JUN	98.2	89.83	765	578	
1963 24A	TIROS 7	US	19 JUN	97.4	58.24	655	617	136.233; 136.992
1963 24B	ROCKET BODY	US	19 JUN	97.3	58.22	644	621	
1963 24C	METAL OBJECT	US	19 JUN	97.9	58.37	680	635	
1963 24D	METAL OBJECT	US	19 JUN	96.9	58.10	651	569	
1963 25B		US	27 JUN	132.5	82.12	4123	335	
1963 26A	RESEARCH SATELLITE FOR GEOPHYSICS	US	28 JUN	102.0	49.74	1297	421	
1963 27A		US	29 JUN	94.8	82.30	524	486	
1963 27B		US	29 JUN	94.3	82.32	482	479	
1963 30A		US	19 JUL	167.9	88.37	3765	3638	
1963 30B		US	19 JUL	167.9	88.41	3730	3673	136.891
1963 30C		US	19 JUL	167.5	88.37	3730	3644	
1963 30D		US	19 JUL	168.0	88.44	3869	3543	
1963 30E		US	19 JUL	168.3	88.42	3765	3673	\$136.980; \$136.468 \$1814.069; \$1815.794 \$1820.177
1963 31A	SYNCOM 2	US	26 JUL	1436.0	33.16	35811	35761	
1963 31B		US	26 JUL	625.8	33.15	35484	251	
1963 33A	ROCKET BODY	USSR	6 AUG	91.3	49.02	419	266	
1963 33B		USSR	6 AUG	89.8	48.94	293	239	
1963 38A		US	28 SEP	107.1	89.92	1122	1061	
1963 38B		US	28 SEP	107.4	89.91	1145	1064	
1963 38C		US	28 SEP	107.4	89.91	1143	1064	136.650
1963 38D		US	28 SEP	107.4	89.92	1149	1058	



OBJECT	CODE NAME	SOURCE	OBJECTS IN ORBIT			INCLI - NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
			LAUNCH	NODAL PERIOD					
1963 LAUNCHES									
1963 39A		US	17 OCT						
1963 39B		US	17 OCT						
1963 39C		US	17 OCT						
1963 42A		US	29 OCT	90.5		89.91	311	276	
1963 42B		US	29 OCT	93.3		89.99	570	297	
1963 42C		US	29 OCT	90.2		89.98	279	279	
1963 43A	POLYOT 1	USSR	1 NOV	102.4		58.90	1416	331	
1963 43B		USSR	1 NOV	102.3		58.58	1411	326	
1963 43C		USSR	1 NOV	101.0		58.92	1319	295	
1963 43D		USSR	1 NOV	101.9		59.77	1375	326	
1963 45B		USSR	16 NOV	88.8		64.83	263	168	
1963 46A	EXPLORER 18	US	27 NOV	5666		33.3	197616	192	136.110
1963 47A	CENTAUR 2	US	27 NOV	107.7		30.40	1763	489	
1963 47B		US	27 NOV	107.1		30.02	1633	567	
1963 47C		US	27 NOV	107.0		29.86	1621	573	
1963 48A		US	27 NOV	90.2		69.99	386	175	

\* APHELION PERIHELION IN ASTRONOMICAL UNITS, INCLINATION TO ECLIPTIC.

\*\* TWO HUNDRED AND FOUR METAL OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1961 OMICRON 1 AND 1961 OMICRON 2. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LISTS.

\$ TRANSMITTING ON COMMAND ONLY.

& TRANSMITTING WHEN IN SUNLIGHT ONLY.

PLEASE ADD THE FOLLOWING TO THE DECAYED OBJECTS LIST

<u>OBJECT</u>	<u>CODE NAME</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>DECAY</u>
1962 SIGMA 1		US	15 MAY	26 NOV 63
1963 9B	ROCKET BODY	US	3 APR	24 NOV 63
1963 45A	COSMOS 22	USSR	16 NOV	22 NOV 63